Antifungal activities of Essential oil of *Alpinia calcarata*

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The fungicidal effect of *Alpinia calcarata* ((family: Zingiberaceae, S. Heen-araththa) essential oil & extracts are investigated in order to explore the possibility to develop fungicides against *Fusarium spp., Curvularia spp.*, and *Colletotrichum spp.* The initial screening showed that ethanol and hot water extracts of *Alpinia calcarata* rhyzome have very low activities against above fungi species. Therefore, further studies on antifungal activities were continued with *Alpinia calcarata* essential oil.

Antifungal activity of essential oil of *Alpinia calcarata* rhyzome on *Fusarium spp., Curvularia spp.* & *Colletotrichum spp.* were determined by agar plate method. 1000, 1500, 2000, 2500, 3000, 3500 and 4000 ppm of essential oil of *Alpinia calcarata* and same concentrations of Daconil (positive control) were used. Stock solution of essential oil was prepared with 95% ethanol. Test solutions were added to the PDA (Potato Dextrose agar) medium, when the temperature of the sterilized medium was 45 ^{0}C. Circular fungi culture discs were kept in the center of the each plate and the diameter of the fungal culture was measured after 3,4,5,6,7 days. Diluted solution of the PDA medium without the essential oil served as the control & untreated PDA medium served as the blank. Each experiment was done in triplicates.

The study revealed that essential oil of *Alpinia calcarata* rhyzome were active against *Fusarium spp., Curvularia spp.* & *Colletotrichum spp.*. The minimal inhibitory concentrations of *Alpinia calcarata* essential oil were 2000,3500 and 4000 ppm towards *Curvularia spp., Colletotrichum spp.* and *Fusarium spp.* respectively. Among the tested fungi species *A. calcarata* essential oil had highest activity towards *Curvularia spp.*. The inhibition % of *Curvularia spp.*, towards *A.calcarata* and Daconil at 2000 ppm was 90.6 % and 58.9 % respectively. Compared with the positive control Daconil, essential oil of *A. calcarata* showed better activity within the range of tested concentrations.

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